

MATERIALS FOR A FLORA OF TURKEY, XVII : ONOBRYCHIS AND HEDYSARUM

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In Turkey, *Onobrychis* with forty-six species and *Hedysarum* with twenty-one are, taxonomically, two extremely difficult genera. Much of this difficulty stems from a lack of knowledge of character variation within taxa. For example, although in the past much stress has been laid on such characters as peduncle length, corolla size and colour, proportions of floral parts, fruit size, shape and toothing, it became very clear while preparing the accounts of these genera for Volume III of the Flora of Turkey, that most characters such as those cited should be used with caution when keying out or defining taxa. Numerous problems of taxonomy still exist which certainly cannot be solved in the herbarium but only in the field. As a result a very conservative view was taken of the taxa in *Onobrychis* and *Hedysarum* and many previously recognised species have not been maintained. There were, however, a few specimens which could not be fitted within existing taxa and they are described here. I am grateful to Dr. A. Huber-Morath of Basle for the loan of his excellent collections and for giving me co-authorship of his new taxa.

***Onobrychis densijuga* Hedge & Huber-Morath sp. nov.** Fig. 1, 4.

Sect. *Onobrychis*. Affinis *O. stenostachyae* Freyn et *O. araxinae* Schischk.; a priore habitu multo minore et corollis brevioribus differt; ab altera calycibus longioribus, vexillis brevioribus divergit.

Perenne basi lignescens, collo residuis petiolorum comoso, subcaespitosum. *Caules floriferi* arcuato-ascendentes, 10–14 cm alti, herbacei, internodiis 2–3 cm longis, pilis albidis brevibus adpressis tecti. *Stipulae* c. 6 mm longae, brunneae, scariosae. *Folia* 5–6 cm longa, 10–12-juga. *Petiolus* 1.5–3 cm longus. *Foliola* c. 9 × 1.5 mm, lineari-oblonga, apice attenuata minute apiculata, subtus adpresse pilosa, supra glabra vel parce pilosa. *Pedunculi* cum racemis 4–8 cm longi, plerumque arcuati. *Racemi* 15–20-flora, c. 3 cm longi, densi. *Bractae* et bracteolae lineari-lanceolatae, membranaceae, c. 2 mm longae. *Pedicelli* 1–2 mm longi, erecti. *Calyx* 7–8 mm longus tubo campanulato, adpresse pilosus, laciniis subulatis tubo 2–3-plo longioribus, porrectis. *Corolla* roseo-alba (?); vexillum 9 mm, oblongo-ellipticum, emarginatum; alae 7 mm; carina 8 mm. *Fructus* immaturus, semi-orbiculatus, pilis brevibus dense obtectus, inermis. *Floret* Jul.

TURKEY. B7 Erzincan: 40 km W of Erzincan on road to Refahiye, alpine meadow, 5 vii 1950, Reese! (holo H-M).

O. densijuga is characterised by the dwarf habit, the closely approximating leaflets, the 7–8 mm calyces and the 9 mm corollas. On account of the large corolla wings, equal in length to the calyces, it is allied to *O. stenostachya* Freyn and *O. araxina* Schischk. but clearly differs in the characters given in the diagnosis. It also appears to differ from these two species in the unarmed fruits but this requires confirmation.

***Onobrychis sulphurea* Boiss. & Bal. var. *vanensis* Hedge var. nov.**

Differt a typo floribus cremeis roseo-striatis alis 4-4.5 (nec 5.5-6.5) mm longis.

TURKEY. B9 Van: 5 km S of Bendimaki, Erceis to Van, fls cream with pink veins, 1750 m, 3 vi 1966, *D.* 44213! (holo E); 7-10 km E of Ercek, 2050 m, *D.* 44369!; Kurbas, 6 km SE of Van, 1850 m, *D.* 44573! Bitlis: Nemrut Da., 1800 m, *D.* 23583! C10 Hakkari: Nehil Cayi, 62 km from Hakkari to Yuksekova, 1750 m, *D.* 44928!

This variety is recognised by the cream flowers veined with pink, the small wings and to a lesser extent the spreading pilose indumentum on the calyx. Occurring in SE Anatolia, it is geographically distinct from the other known gatherings of *O. sulphurea* in C and S Anatolia. It may merit higher status but more material, including fruiting specimens, is needed. An anomalous specimen is: B9 Bitlis, E flank of Nemrut Da between Tatvan and Sogurt, 1820 m, *D.* 23536! It differs from the other cited specimens in the linear (not oblong-elliptic) leaflets and the very pale pink flowers.

***Onobrychis quadrijuga* Hedge & Huber-Morath sp. nov. Fig. 1, 3.**

Sect. *Onobrychis*. Differt ab *O. megataphro* Boiss. foliolis quattuor lineari-bus pilis adpresso-patentibus, corollis minoribus.

Perennis. *Rhizoma* collo reliquis stipularum et petiolorum comosum. *Caules* ascendentes vel erecti, 30-50 cm alti, pilis albidis adpresso-patentibus densiuscule tecti, herbacei, sulcato-striati, internodiis mediis c. 9 cm longis, superne pauciramosi. *Stipulae* membranaceae albae, triangulares, c. 6 mm longae, pilosae. *Folia* pauca, 6-10 cm longa, 4-juga. *Petiolus* 3-5 cm ut caules pilosus. *Foliola* anguste linearia, 20 × 2 mm, utrinque pilis adpresso-patentibus dense obsita, basi et apice attenuata. *Pedunculi* cum racemis ad 20 cm longi, erecti. *Racemi* laxi, multiflori. *Bractee* et bracteolae minimae, 2-2.5 mm longae, membranaceae. *Pedicelli* 1.5-2 mm, erecti. *Calyx* 8 mm longus, ± adpresso pilosus, laciniis subulatis tubo usque triplo longioribus porrectis. *Corolla* rosea striata; vexillum 10.5 mm, suborbiculare, emarginatum; alae 5 mm; carina 10 mm vexillum ± aequans. *Fructus* ignotus. *Floret* Jun.

Turkey. B6 Sivas: d. Gürün, Gürün to Sivas, limestone rocks 35 km N of Gürün near Bögrüdelik, 1750 m, 28 vi 1953, *Huber-Morath* 12078! (holo H-M).

O. quadrijuga is recognised by the few leaves on the stem, the elongated internodes, the narrow linear leaflets, four in number, and the long erect calyx teeth. Although in general habit it looks a very distinct species, its closest ally is probably *O. megataphros* which differs in the four to seven pairs of oblong or oblong-elliptic leaflets.

***Onobrychis occulta* Hedge & Huber-Morath sp. nov. Fig. 1, 5.**

Sect. *Onobrychis*. Species insignis vix cum alia comparanda.

Perenne, basi lignescens subcaespitosum, caules floriferos et surculos steriles emittens. *Tota planta* pilis albis adpressissimis dense tecta. *Caules floriferi* herbacei, 4-10 cm alti, procumbentes vel erecti. *Stipulae* triangulari-ovatae, membranaceae, albae. *Rami steriles* abbreviati, densiuscule foliati.

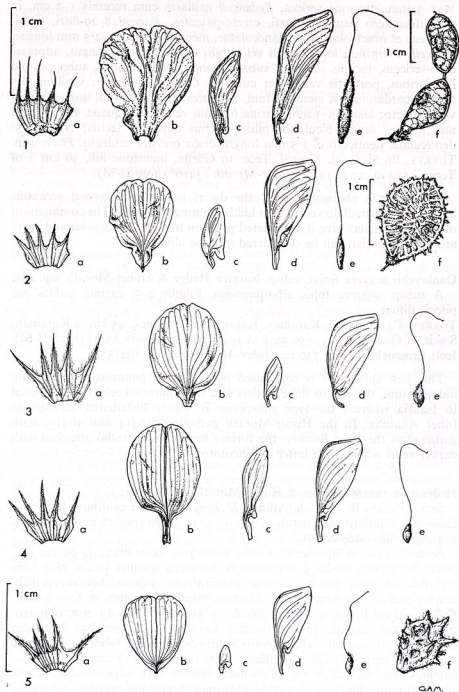


FIG. 1. Drawings of floral parts of: 1, *Hedysarum vanense* Hedge & Huber-Morath; 2, *H. pycnostachyum* Hedge & Huber-Morath; 3, *Onobrychis quadrijuga* Hedge & Huber-Morath; 4, *O. densijuga* Hedge & Huber-Morath; 5, *O. occulta* Hedge & Huber-Morath. a, calyx; b, standard; c, wing; d, keel; e, ovary; f, fruit.

Folia 2–3 cm longa, petiolo brevi, 3–5-juga. *Foliola* lineari-oblonga, 8–10(–15) × 2–3 mm, utrinque sericea. *Pedunculi* axillares cum racemis 1–2 cm, in statu fructifero paulo elongati, erecto-patentes. *Racemi* 8–20-flori, densi. *Bracteae* et bracteolae lineari-lanceolatae, membranaceae, 2–2.5 mm longae. *Pedicelli* 1–1.5 mm longi, erecti vel patuli. *Calyx* 7.5 mm longus, adpresse albo-sericeus, laciniis subulatis subaequilongis albo-plumosis, tubo 2–3-plo longioribus, porrectis vel leviter curvatis. *Corolla* rosea (?); vexillum 6.5 mm, obcordatum, vix emarginatum, basi breviter attenuatum ungue lamina vix distincto; alae 2.5–3 mm; carina 6.5 mm vexillum aequans. *Fructus* c. 4 mm longus, semi-orbiculatus, pilis brevibus adpressis tectus; crista 4–5-denticulata, denticulis c. 1.5 mm longis, disco breviter aculeato. *Floret* Jun. TURKEY. B6 Sivas: d. Kangal, Tecer to Gürün, limestone hill, 36 km S of Tecer, 1520 m, 27 vi 1955, *Huber-Morath* 13410! (holo H-M).

O. occulta is characterised by the dwarf habit, the crowded sericeous leaves and the small flowers almost hidden among the leaves. The combination of these characters give it an isolated position in Sect. *Onobrychis* and there are no species that can be considered as close allies of it.

***Onobrychis argyrea* Boiss. subsp. *isaurica* Hedge & Huber-Morath ssp. nov.**

A subsp. *argyrea* foliis albo-pannosis, foliolis 2–3, carinis glabris nec pilosis differt.

TURKEY. C4 Konya: d. Karaman, Karaman to Ermenek, 45 km to Karaman, S side of Gök su valley, 550 m, 8 vi 1948, *Huber-Morath* 8527! (holo H-M). İçel: Ermenek to Mut, 730 m, *Huber-Morath* 10414!, 10415!

This new subspecies is recognised by the white pannose, ± spreading indumentum, the two to three leaflets and the glabrous keels. It is restricted to Isauria whereas the type subspecies is widely distributed throughout Inner Anatolia. In the *Huber-Morath* gatherings 10414 and 10415, both gathered at the same locality, the former has yellow corollas streaked with darker veins whereas the latter is concolorous.

***Hedysarum vanense* Hedge & Huber-Morath sp. nov.** Fig. 1, 1.

Sect. *Obscura* B. Fedtsch. Affinis *H. hedysaroidi* sed caulibus altioribus, foliis 4–5 foliolatis (nec 6–10), carinis 13.5–15.5 mm (nec 18 mm), lomentis 1–3 segmentis valde differt.

Perenne, basi vix lignescens. *Caules* numerosi, valde elati, 40–60 cm alti, erecti, internodiis mediis c. 6 cm longis, herbacei, tenuiter striati, pilis albis brevibus adpressis provisi, superne pauciramosi. *Stipulae* liberae vel sub-amplexicaules, brunneae, membranaceae, pilosae, inferiores c. 5 × 5 mm. *Folia* c. 10 cm longa, 4–5-juga. *Foliola* 25–35(–45) × 10–13 mm, oblongo-elliptica, basi cuneata, apice rotundata semper minute apiculata, in medio latissima, utrinque pilis albis brevibus adpressis obsita; foliolum terminale ceteris non maius. *Pedunculi* axillares, cum racemis 10–15 cm longi, erecto-patentes; racemi pauci- vel multi-flori, inferne laxi, superne densiusculi, adpresso-pilosi. *Bracteae* elongatae, filiformes; bracteolae filiformi-subulatae. *Pedicelli* 2–4 mm longi, ± erecti. *Calyx* 4–6 mm, albo-pilosus, laciniis subulato-attenuatis tubo usque duplo longioribus. *Corolla* purpurascens; vexillum 13 × 9 mm, leviter late emarginatum; alae 9–10 mm; carina

vexillo paulo longior 13.5–15.5 mm. *Ovarium* anguste lineare, pilosum, 2–4-ovulatum. *Lomentum* 1–3-articulatum, segmentis applanatis, late ellipticis, c. 15 × 8 mm, elevate reticulato-nervosis, pilosum. *Floret* Jun–Jul. TURKEY. B9 Van: d. Gürpınar, Van-Hoşap, steppe 15 km W of Hoşap, 2020 m, 8 vii 1951, *Huber-Morath* 11164! (holo H-M). B9/C9 Van: d. Başkale, İspiriz Da., 2700 m, D. 23728!

Although this new species is related in the diagnosis to *H. hedysaroides*, it is a distant relative of that widespread and variable species. The characteristic features of *H. vanense* and those which clearly separate it from *H. hedysaroides* are the taller, erect stems, the 4–5 pairs of oblong-elliptic leaflets, the 13 mm standards shorter than the keels, and the 1–3, flattened, broad elliptic segments of the fruit.

Currently only known from two gatherings, *H. vanense* is apparently a rare endemic distinct geographically and morphologically from all other species in the genus.

***Hedysarum pycnostachyum* Hedge & Huber-Morath sp. nov. Fig. 1, 2.**

Sect. *Crinifera* (Boiss.) B. Fedtsch. Species valde insignis vix cum alia specie comparanda.

Suffrutex. *Caules* numerosi, tenues, elati, paucifoliati, erecti, 45–60 cm alti, internodiis mediis c. 10 cm longis, herbacei, tenuiter striati, pilis albis brevibus adpressis obsiti, simplices. *Stipulae* subamplexicaules, brunneae, pilosae, inferiores c. 4.5 mm longae. *Folia* pauca, c. 10 cm longa, 4–8-juga. *Petiolus* c. 2.5 cm longus. *Foliola* c. 8 × 2 mm, lineari-oblonga, basi et apice breviter attenuata, subtus valde adpresse pilosa, supra glabra vel parce pilosa; foliolium terminale ceteris non maius. *Pedunculi* cum racemis 10–30 cm longi, erecti. *Inflorescentia* pyramidalis, 2–3 cm longa, multiflora, condensata. *Bractee* et bracteolae subulato-filiformes, cito deciduae, albo-pilosae. *Pedicelli* 1.5–2 mm, erecti vel patuli. *Calyx* 5 mm longus, dense adpresse albo-pilosus, laciniis tenuiter subulatis tubo circa duplo longioribus. *Corolla* flava (e collectore); vexillum 7 mm, lamina antice leviter emarginata; alae 5 mm; carina 10 mm, vexillo manifeste longior. *Ovarium* 2-ovulatum, pilosum. *Lomentum* 1-segmentum, applanatum, ovatum, dense pilosum et setis rubris usque 2 mm longis obsitum. *Floret* Jun.

TURKEY. B7 Elazığ: d. Baskil, rocks on the left bank of the Euphrates, near the Malatya-Elazığ bridge, 51 km E of Malatya, 680 m, *Huber-Morath* 9064! (holo H-M).

This remarkable species is known only from the single gathering and consequently its range of variation is unknown. There is however no doubt that it occupies an isolated position in the genus on account of the suffruticose habit, the few leaves, the short pyramidal inflorescence, the small yellow flowers, the proportions of standard, wings and keel and the broad, ovate, 1-membered, densely pubescent, setose fruit. It differs on these characters from all other members in sect. *Crinifera* of which, however, it should be considered an anomalous member. More material is needed to determine whether the fruit is consistently 1-membered.